



The UK Passive House Organisation

State of Play of Passivhaus in the UK

Jon Bootland, Chief Executive, Passivhaus Trust

The Passivhaus Trust's 1st Anniversary

5th July 2011

Sponsored by



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Hosted by



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The Passivhaus Standard in the UK

1. Passivhaus in the UK
2. PH projects – The “Firsts”
3. PH projects – most recent
4. PH projects - forthcoming
5. The future of Passivhaus



EU Passivhaus History



The UK Passive House Organisation

Around 20,000 Passivhaus projects have been completed world-wide, mostly in Germany and Austria.

The Passivhaus Standard is now the leading international low-energy standard.

The Passivhaus is a building concept that can be adopted by anyone!



Weber pre-fabricated timber frame Passivhaus, Germany
(photograph KP ArCreation)



Passivhaus in the UK

- We started quite late



1997



1996



UK 2008



2010

Passivhaus in the UK

Currently 18 developments completed and certified



Key:

Blue pins - certified

Green pins – planned
or under construction

Passivhaus in the UK

Skills available

- 5 Passivhaus Certifiers within the UK and Ireland
- 82 accredited European Passivhaus designers . . . and growing
- 3 courses available in England and Scotland



Footholds in UK policy

- Energy & Climate Change secretary, Chris Huhne – *“Passivhaus is a fundamental re-imagining of our relationship with the outdoors . . . I would like to see every new home in the UK reach the Passivhaus standard.”*
- Camden Council Planning Policy support – *“The Council will be supportive of schemes that aim to achieve the Passivhaus standards, subject to other policy and design considerations.”*



We're just beginning

- PHPP is not accepted for regulation – we have to use SAP calculations
- Passivhaus components and practices still not common in UK construction.



- Still confusion, myth and mis-use of terms surrounding the Passivhaus principles.

Passive House Verification

Photo or Drawing

Building:	Terraced House Option - Clay County Eco Town		
Location and Climate:	GB-Plymouth		
Street:			
Postcode/City:			
County:			
Building Type:			
Home Owner(s) / Client(s):			
Street:			
Postcode/City:			
Architect:			
Street:			
Postcode/City:			
Mechanical System:			
Street:			
Postcode/City:			
Year of Construction:	2010	Interior Temperature:	20.0 °C
Number of Dwelling Units:	1	Internal Heat Gains:	2.1 'W/m²'
Enclosed Volume V _{int} :	189.7 m³		
Number of Occupants:	18		

Results Derived with Reference to the Treated Floor Area

	Applied:	Maximally Methoded	PH Certificate:	ExEMitted
Specific Space Heat Demand:	15 kWh/(m²·a)		15 kWh/(m²·a)	Yes
Pressurization Test Result:	0.6 h ⁻¹		0.6 h ⁻¹	Yes
Specific Primary Energy Demand (HEW, Heating, Cooling, Auxiliary and Recycled Electricity):	50 kWh/(m²·a)		120 kWh/(m²·a)	Yes
Specific Primary Energy Demand (HEW, Heating and Auxiliary Electricity):	21 kWh/(m²·a)			
Specific Primary Energy Demand Energy Consumption by Solar Electricity:	kWh/(m²·a)			
Heating Load:	11 W/m²			
Frequency of Overheating:	7 %		OWI: 28 °C	
Specific Useful Cooling Energy Demand:	kWh/(m²·a)		15 kWh/(m²·a)	
Cooling Load:	12 W/m²			

We confirm that the values given herein have been determined following the PHPP methodology and based on the characteristic values of the building. The calculations with PHPP are attached to this application.

Signed on: _____
signed: _____

Retrofit standards

- The Passivhaus Institute has developed a retrofit standard – Enerphit
- The UK Government has established the Green Deal
- This only provides about £6,000 per dwelling for refurbishment
- The target is to achieve about 20% reduction in energy use
- We are so far away from the Enerphit standard for existing homes in the UK at the moment.....



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The First Certified Passivhaus Domestic Project in the UK



Y-Foel, Machynlleth, Wales
JPW Construction



The First Certified Passivhaus Domestic Project in England



Underhill House, Moreton-in-Marsh
Helen Seymour-Smith Architects



The First Certified Passivhaus Domestic Project in Scotland



Tygh-Na-Cladach, Dunoon
Architect: Professor Gokay Deveci



The First Certified Passivhaus Office in the UK



Canolfan Hyddgen, Machynlleth, Wales
JPW Construction



The First Certified Passivhaus Office in England



Centre for Disability Studies, Essex
Simmonds Mills Architects



The First Certified Passivhaus Office in England

Centre for Disability Studies, Essex
Simmonds Mills Architects



The First Certified Passivhaus Education building in the UK

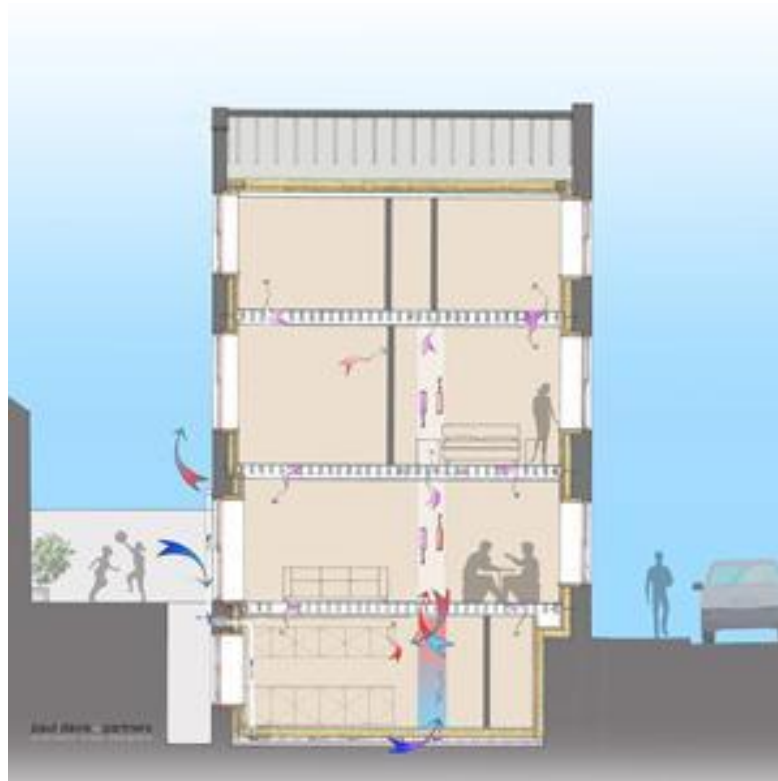


Hadlow College, Kent
Eurobuild



The First Certified Passivhaus Residential Retrofit

100 Princedale Road, London
Paul Davies Architects, Octavia Housing



Passivhaus - Dwellings



The UK Passive House Organisation

Camden Passivhaus, London
First certified Passivhaus in London



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Passivhaus - Dwellings

Tunstall's House, Denby Dale



Green Building Co & Architect Derrie O'Sullivan

Passivhaus - Dwellings

High Barn House, Somerset



HANSE HAUS

Passivhaus - Dwellings

Crossway Passivhaus, Kent



Passivhaus - Dwellings



The UK Passive House Organisation

Wales



Larch House and Lime House, Ebbw Vale
bere:architects

Passivhaus - Dwellings



The UK Passive House Organisation

Scotland



Midmar Passivhaus,
Gokay Devici



Kingdom House, Oliver&Robb Architects



Spoooner House, Gokay Devici

Passivhaus - Offices

Interserve Project Services Offices, Leicester
First Passivhaus office in the Midlands



Raynsway Properties with CPMG Architects

Passivhaus - Housing

Carnegie Village, Leeds Met University
First Passivhaus Student Accommodation Scheme in UK



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Passivhaus - Community



Mayville Community Centre, London

Aiming to be First Community Building Retrofit in the UK



Passivhaus - Housing



The UK Passive House Organisation

Wimbish development, Norfolk
14 units aiming for certification



view from adjacent field looking west
Proposed Passivhaus Affordable Housing, Tye Green, Wimbish for Hastoe Housing Association



Passivhaus - Housing



Sampson Close, West Midlands

Largest scheme in England aiming to achieve Passivhaus certification



Orbit Heart of England with Baily Garner

Passivhaus - Housing

Chi Difreyth – Baal eco-community, Cornwall



Passivhaus - Housing

Bryce Lodge, Horsham
12 units aiming for certification



View of parking square

Passivhaus - Education



Primary schools, Wolverhampton & Leeds
Aiming for certification



Architype & Thomas Vale Construction

Passivhaus - Education



Primary schools, Wolverhampton & Leeds
Aiming for certification



Architype & Thomas Vale

Passivhaus - Education



Montgomery primary school, Exeter
Aiming for certification



Passivhaus - Retrofit



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Lena Gardens, London



Green tomato energy

Passivhaus - Retrofit



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St. Luke's Street, Retrofit for the Future, Stoke on Trent

Aiming for EnerPHit standard



Anne Thorne Architects

Passivhaus - Retrofit

UK wide exemplars based on PHPP



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The future for Passivhaus



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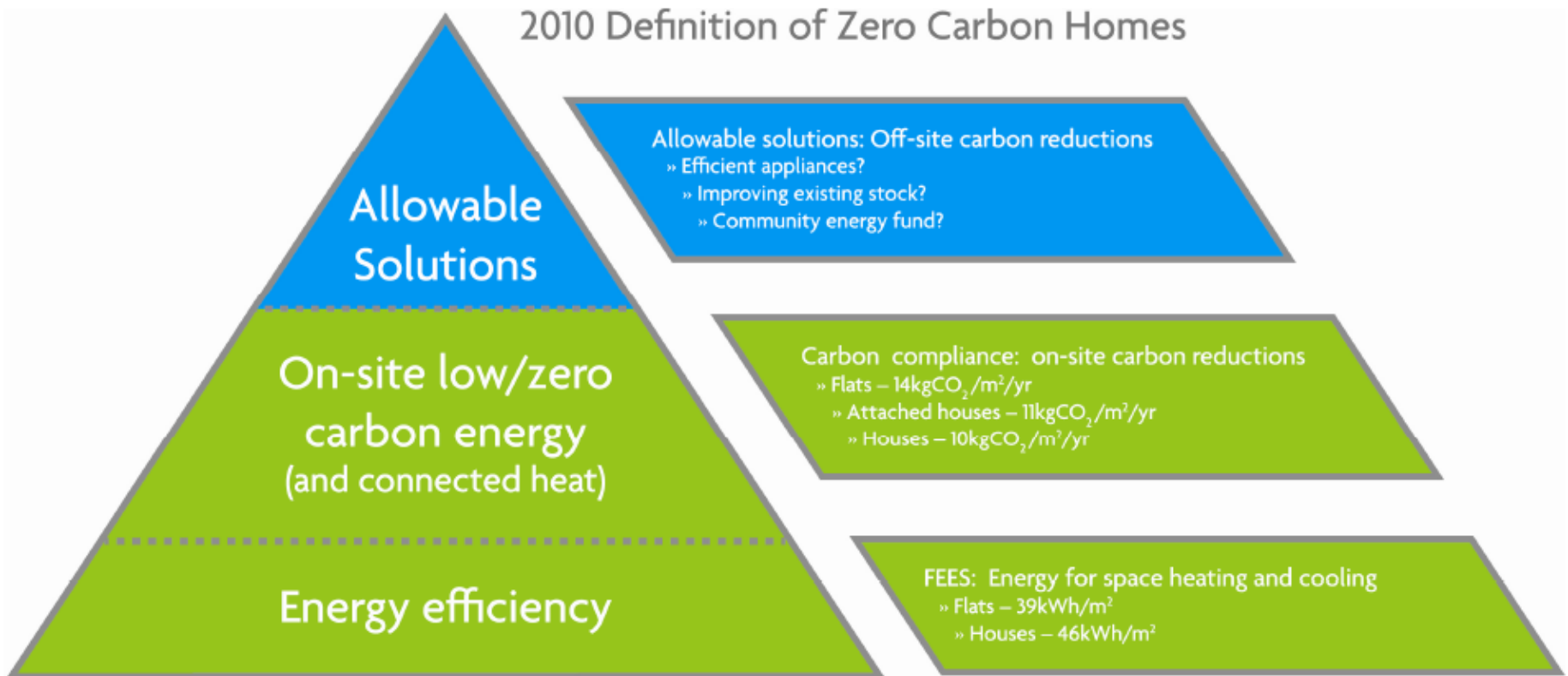
What is happening next?

- Engage on policy re Part L 2013
- UK Passivhaus Conference 2011 – 24/25 October
- UK Passivhaus Open Days – 11-13 November
- Technical seminar on Enerphit & PH retrofit (date tbc)
- Ecobuild 2012

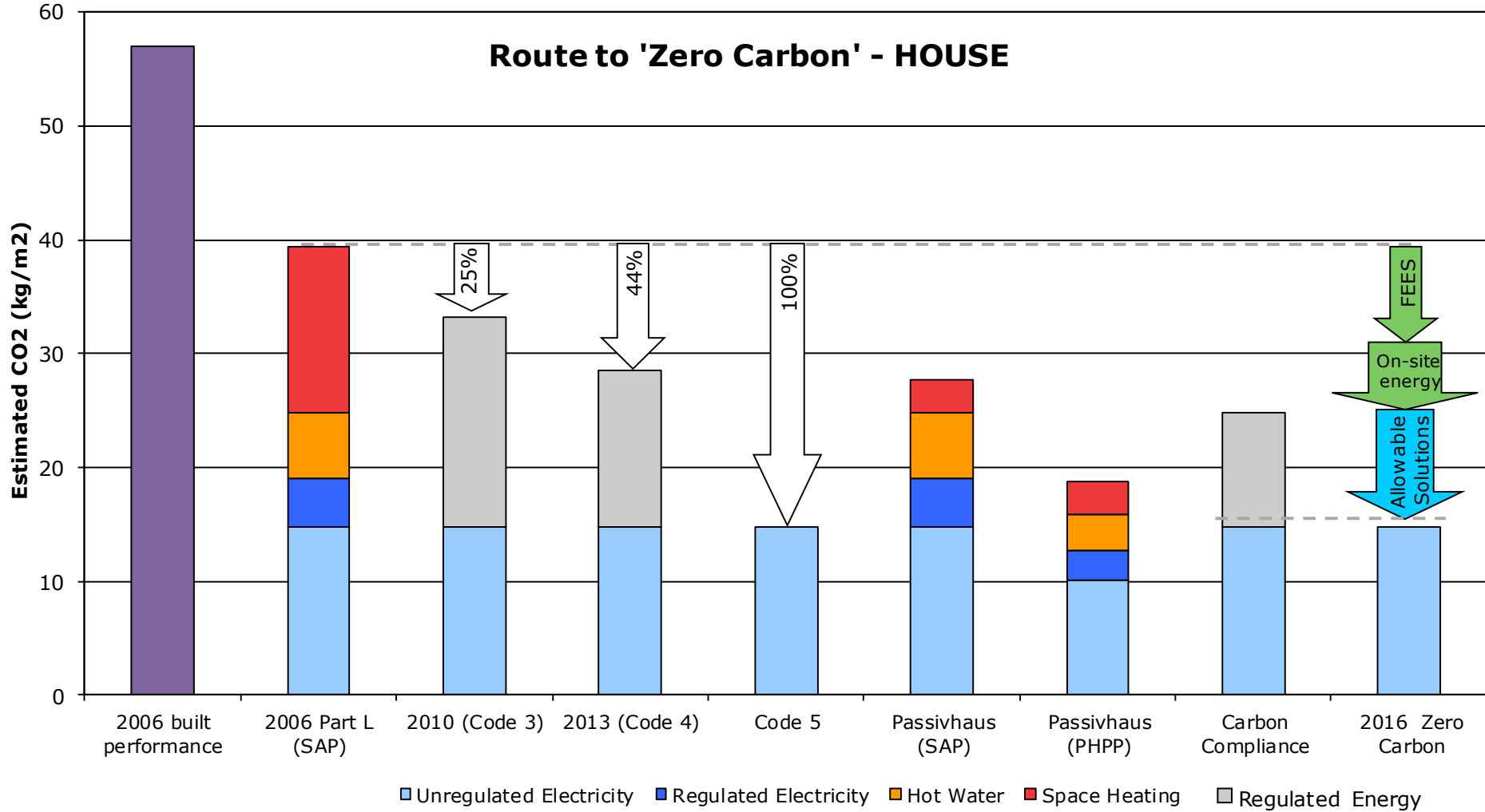
Ideas for next year

- Training for contractors/ installers
- Engagement with planners
- Preparation of introductory guides for users and clients
- Encourage UK supply chain and product certification
- Database of projects

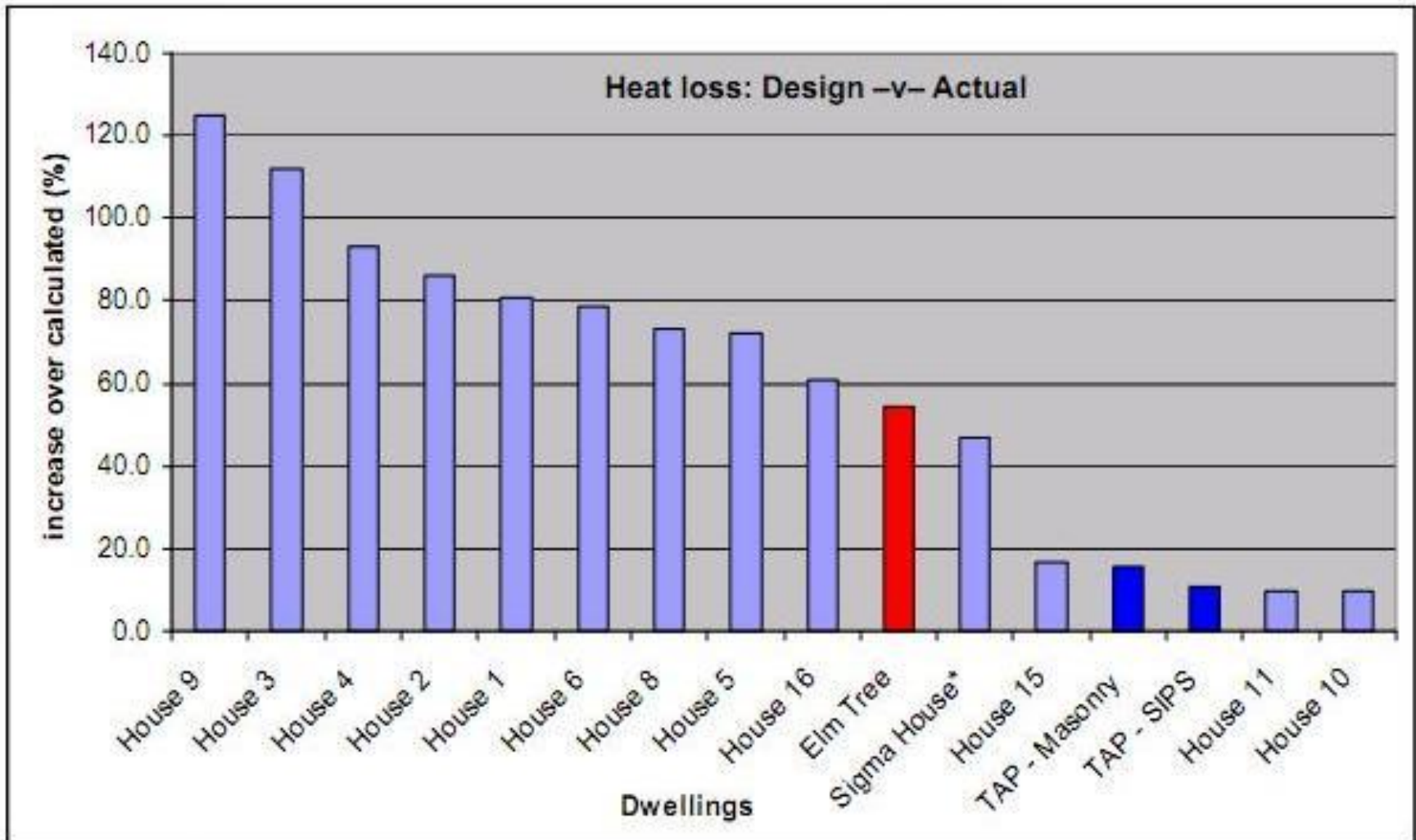
UK policy – zero carbon



2011 definition of 'zero carbon'



The performance gap



Passivhaus performance

- Canolfan Hyddgen monitored data
 - 80 kWh/m²/yr primary energy demand
 - 14.8 kWh/m²/yr heating demand (£130/yr gas bill)
 - temperatures never below 20° C or over 26° C
 - achieved for £1784/m²
- Y Foel monitored data
 - 105 kWh/m²/yr primary energy demand
 - 14.97 kWh/m²/yr heating demand



Passivhaus in the UK

Thank you

